

Claims:

1. An isolated PSTPIP polypeptide selected from the group consisting of:

(i) a polypeptide comprising the amino acid sequence of the PSTPIP polypeptide shown in Fig. 1A (SEQ ID NO:1);

(ii) a polypeptide having at least 65% sequence homology with the PSTPIP amino acid sequence of Fig. 1A (SEQ ID NO:1); and

(iii) a polypeptide encoded by nucleic acid which hybridizes under stringent conditions to nucleic acid encoding the polypeptide of (i);

provided that the polypeptides of (ii) and (iii) substantially retain the ability to bind to a member of the PEST-type protein tyrosine phosphatases.

2. The PSTPIP polypeptide of Claim 1 having at least 85% sequence homology with the PSTPIP amino acid sequence of Fig. 1A (SEQ ID NO:1).

3. The PSTPIP polypeptide of Claim 1 comprising the amino acid sequence of the PSTPIP polypeptide shown in Fig 1A (SEQ ID NO:1).

4. The PSTPIP polypeptide of Claim 1 which is capable of being dephosphorylated by a member of the PEST-type protein tyrosine phosphatases when phosphorylated on at least one tyrosine residue.

5. The PSTPIP polypeptide of Claim 1, wherein the member of the PEST-type protein tyrosine phosphatases is PTP HSCF.

6. The PSTPIP polypeptide of Claim 1 which is devoid of a C-terminal SH3 domain.
- 5 7. The PSTPIP polypeptide of Claim 1 which is not phosphorylated.
8. The PSTPIP polypeptide of Claim 1 which is phosphorylated on at least one tyrosine residue.
- 10 9. The PSTPIP polypeptide of Claim 1 which associates with actin.
10. An antagonist of the PSTPIP polypeptide of Claim 1.
11. An isolated nucleic acid sequence which encodes the PSTPIP polypeptide of Claim 1.
12. A vector comprising the nucleic acid sequence of Claim 11 operably linked to control sequences recognised by a host cell transformed with the vector.
- 20 13. A host cell comprising the nucleic acid sequence of Claim 11.
- 25 14. A host cell comprising the vector of Claim 12.
15. An antibody capable of specific binding to the PSTPIP polypeptide of Claim 1.
- 30 16. The antibody of Claim 15 which is detectably labeled.
17. The antibody of Claim 15 which is a monoclonal antibody.
18. A hybridoma cell line which produces the antibody of Claim 15.
- 35 19. A method for producing the PSTPIP polypeptide of Claim 1

comprising transforming a host cell with nucleic acid encoding said polypeptide, culturing the transformed cell and recovering said polypeptide from the cell culture.

5

20. A method for inducing the polymerization of actin monomers in a eukaryotic cell comprising introducing into said cell the PSTPIP polypeptide of Claim 1.

10

21. The method of Claim 20, wherein the step of introducing comprises introducing into said cell the vector of Claim 13.

22. An assay for identifying an antagonist or agonist of the PSTPIP polypeptide of Claim 1 which comprises contacting the PSTPIP polypeptide of Claim 1 with a candidate antagonist or agonist and monitoring the ability of said polypeptide to induce the polymerization of actin monomers.